



TRANSLATION

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In response to the action of January 12, 2001, received
on January 15, 2001

The applicant herewith submits an amended set of claims 1-18 in exchange for the originally filed claims 1-19, in triplicate execution, which are to be used as basis for the further examination process.

The new claims were now aimed at a safety vacuum cleaner with measuring system for residual dust monitoring, and the generic term of the independent claim was correspondingly amended with the aid of the originally filed documents.

Further, in the characterization of the independent claim 1 there was supplemented: " ... in which the unfiltered dirt particles are essentially not yet charged electrically before contact with the measuring electrode 11."

The designation "Strom" (current, flow, stream etc. TRANS) was redesignated in respect to the suction stream brought about in operation by the turbine 5, into "air stream", in order to avoid confusions with "electrical currents."

The expression "downstream" was replaced by "downstream of the air flow" in the amended (altered) claims.

The original claim 13 was deleted without replacement and subsequent claims were renumbered and adapted in their back reference.

The definite article in the original claim 14 (now 13) was changed into an indefinite article and "measuring value processing" was supplemented with : "that in a differential amplifier (12) the measuring value processing"

The definite article in the original claim 19 (now 18) was retained, however, since "the evaluating unit" was replaced by "the measuring value further-processing-unit," which is mentioned already in claim 14 (now 13).

For the relevant publications:

For D1 (JP 03280915):

The publication D1 cannot be designated as the closest-lying state of the art, for in publication D1, over a charge grid (Ladungsgitter) 4 first an electric charge is given and applied to the dust particles, which correspondingly are electrically charged and then at a distance from this they impinged upon a measuring electrode 6 arranged at a distance, where the charge is measured.

This is an essential difference from the object of the present invention, because in the present invention no charging of the dust particles takes place through a previously arranged charge grid.

The arrangement of such a charge grid has the disadvantage, namely, that a complete charging of the dust particles cannot be presumed at all. For this reason this arrangement according to the publication D1 is inexact and uncertain, because a partial (number) of the particles impinges upon the charge grid 4 and is charged there, while in the present invention such a charging does not take place at all.

The present invention presumes that the particles strike the measuring electrode in neutral polarity and hereby there arise frictional and deflectional forces that provide (= triboelectrical effect) that the particle is charged after the impinging upon and the leaving of the electrode and, for example, carries a positive charge*, while the corresponding other displacement charge strikes upon the measuring grid and is deflected from the measuring grid toward the mass (Masse) and the resulting current is measured in the region of this deflection between the measuring grid and the mass.

This means, therefore, that in the invention the charge of neutral particles on a measuring grid is measured on the basis of a charge displacement and of the triboelectrical effect, while in publication D1 this is precisely not the case, because through a pre-engaged electrode these particles are already (erst einmal) charged, which happens only unsatisfactorily since not all the particles and moreover a steadily fluctuating number of particles are charged.

*Reading Ladung ("charge") for the word Landung ("landing") of the original. TRANS.

A disadvantage of publication D1 is, therefore, that only an incomplete charging of all the particles on the charge grid 4 takes place, and a further disadvantage is that by reason of electrostatic charge displacements a large part of the dust particles tends to adhere to the measuring grid 6 and to load (encumber) this, so that a measurement on the measuring grid is no longer possible.

The invention avoids these disadvantages in a non-obvious manner, because the invention makes use of the triboelectric effect, which publication D1 does not know at all.

It does not hold, therefore, as the examiner's office sets forth, that in publication D1 likewise a current evoked by contact tension between measuring electrode and dust particles is measured, because, after all, in publication D1 the dust particles are charged, while in the present invention neutral dust particles acquire their charge only on the measuring electrode.

It is here, therefore, that there lies the essential difference between the object of the invention and that of publication D1.

For D2 (JP 04063153):

The same criticism holds also for publication D2, because there a high-voltage field is applied exclusively between two electrodes, between which the dust particles are supposed to fly through.

This, however, as is well known, is a very poor measuring process, because a large part of the electrodes (? Elektroden) is deposited by reason of the charge separation on the capacitor plates and adheres there, so that with increased dirt load the high-voltage field gets worse and worse and the dust measurement becomes more and more insensitive.

The difference with respect to publication(s) D1 and D2 is, therefore, that just with the invention the work is done with neutral dust particle which only by an impingement on the measuring grid undergo a corresponding charge displacement and the current arising there is then drawn upon for the appraisal of the dust burden.

If the examiner's office should not see itself in a position to approach the newly formulated patent protection sought in the present form or in a modified form, then as an auxiliary measure a petition is lodged for an oral hearing.
The petition is

substantiated by the fact that obviously there are discrepancies present between the view of the examiner's office and that of the applicant in regard to the appraisal of the scope of patent protection sought, and that the applicant's representative could explain still further features of the invention, which hitherto did not stand in the foreground of the discussion.

For the applicant:

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Enclosures: Amended claims 1-18, in triplicate